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ABSTRACT

The North Carolina End-of-Grade Testing Program is based on the assessment of higher-level skills, the thinking and problem-solving strategies that enable people to access, sort, and digest information. The end-of-grade tests, which are aligned with the state's "Standard Course of Study," were designed to be administered at the end of instruction in grades 3 through 8. They are designed to assess reading comprehension and mathematics skills, but other curriculum areas are integrated into the assessments. The content validity of the item pools was defined through several operations, and both difficulty level and thinking skill level were used to classify test items. Each test consists of 10 passages and from 3 to 8 associated questions per passage. Some forms of the end-of-grade tests have been designated as "secure for local use" and are no longer considered secure for statewide use. Designating a form of the test for local use allows school systems to retest students after interventions, deliver staff development, and conduct research studies. For each item on a "secure for local use" test form item information is provided on the curriculum goal and objective from the North Carolina "Standard Course of Study," the thinking skill associated with the item, the correct answer, and the p-value (percentage of students who responded correctly to the item during the 1998 administration of the test). Mathematics items and reading comprehension items are given for grades 3 through 8. (Contains two tables and three figures.) (SLD)

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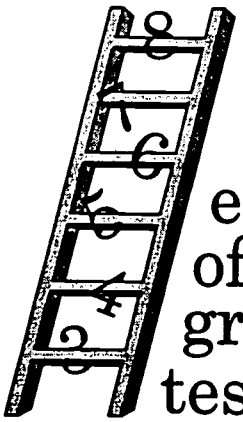
Local Use Form
1997-1998

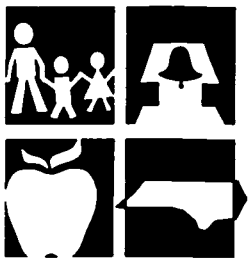


end of grade testing

Interpretive Guide for North Carolina End-of-Grade Tests

Mathematics
Reading Comprehension

Public Schools of North Carolina
State Board of Education
Department of Public Instruction
Office of Instructional and Accountability Services
Division of Accountability



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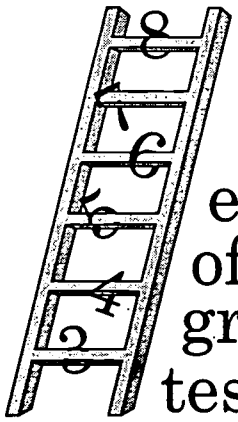

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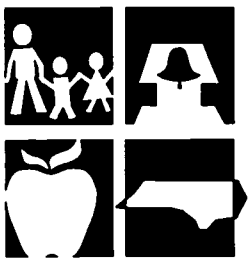

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As we look towards the 21st Century, it is more important then ever that North Carolina students need to move far beyond the mastery of basic skills to the mastery of higher level skills. The term "higher level skills" refers to the thinking and problem solving strategies that enable people to access, sort, and digest enormous amounts of information. It refers to the skills required to solve complex problems and to make informed choices and decisions. It also refers to advanced communication skills that enable individuals to express and share what they know and to work well with others (North Carolina End-of-Grade Testing Program: Background Information, 1993, p. 1).

The End-of-Grade Testing Program is based on the assessment of these higher level skills. When properly administered and interpreted, these test results provide an independent, uniform source of reliable and valid information which enables

- *students* to know the extent to which they have mastered expected knowledge and skills and how they compare to others;
- *parents* to know if their children are acquiring the knowledge and skills needed to succeed in a highly competitive job market;
- *teachers* to know if their students have mastered grade-level knowledge and skills in the curriculum and, if not, what weaknesses need to be addressed;
- *community leaders and lawmakers* to know if students in North Carolina schools are improving their performance over time and how the students compare with students from other states or the nation; and
- *citizens* to objectively assess their return on investment in the public schools

(*North Carolina Testing Code of Ethics*, revised 1996).

Background

Based on a recommendation of the Compliance Commission, the North Carolina State Board of Education adopted a policy that designated one form of the North Carolina End-of-Grade Tests at each grade level as "designated for local use." This policy was adopted on May 1, 1997 and became effective on June 11, 1997.

The purpose of this policy is to provide local school systems with the ability to (1) retest students after remediation or focused intervention, (2) deliver staff development, and (3) conduct research studies. It is expected that the leadership of the local school system will determine how and the extent to which the tests will be used within the school system, and will abide by published guidelines and ethics associated with professional practices in the field of educational measurement.

As of June 11, 1997 and June 30, 1998, the forms of the North Carolina End-of-Grade Tests described in the table below are designated as "secure for local use" and are no longer considered to be secure state tests.

Table 1. North Carolina End-of-Grade Tests of Reading Comprehension and Mathematics Designated as "Secure for Local Use".

Grade	1996-1997	1997-1998
3	L	M
4	L	H
5	L	H
6	L	H
7	L	H
8	M	J

Other (secure) forms of the North Carolina End-of-Grade Tests used to measure student performance *may not* be substituted for the aforementioned forms. Use of the other (secure) forms of the tests for purposes other than state-directed accountability programs constitutes a breach of test security.

The North Carolina End-of-Grade Tests were developed by the North Carolina Department of Public Instruction with technical support from the L.L. Thurstone Psychometric Laboratory at The University of North Carolina at Chapel Hill and the North Carolina Technical Advisory Group. The tests were developed for use as achievement tests to measure the acquisition of specific subject-area content and skills associated with a particular grade in school. The purpose of these tests is twofold: (1) to improve student performance on the knowledge and skills specified in the North Carolina *Standard Course of Study*; and (2) to hold schools, school systems, and the state accountable for the education of students on the knowledge and skills specified in the North Carolina *Standard Course of Study*. Both norm-referenced (where the frame of reference is a specified population of students) and criterion-referenced (where the frame of reference is a specified content domain) interpretations of the test scores support the purpose of the North Carolina End-of-Grade Tests.

The end-of-grade tests are aligned with the revised North Carolina *Standard Course of Study* and emphasize higher level thinking skills—students are expected to have knowledge of important ideas and concepts; understand and interpret events; apply knowledge, skills, and concepts; and make connections. While knowledge of facts and concepts is important, the questions on the tests are typically at a broader level and concern major ideas that students are expected to know to be considered literate. In addition to being asked to solve problems, students are asked "how" to solve a problem or "what strategy should be used" to solve a problem. Even in reading, students are asked to explain how they determined the correct answer to a given question. Better students are able to take responsibility for their own learning. They develop an awareness of their own thinking, including attitudes, habits, and dispositions.

Table 2. Administrative information for the North Carolina End-of-Grade Tests of Reading Comprehension and Mathematics.

Subject/Grade		Amount of Testing Time	Number of Items on Each Form
Reading Comprehension	3	100	56
	4	100	65
	5	100	65
	6	100	65
	7	100	66
	8	100	68
Mathematics	3	12/85	12/68*
	4	12/85	12/68*
	5	12/85	12/68*
	6	12/85	12/68*
	7	12/85	8/72*
	8	12/85	8/72*

*Number of items on the computation part/number of items on the applications part.

The North Carolina End-of-Grade Tests of Reading Comprehension and Mathematics were developed to be administered at the conclusion of instruction in grades 3 through 8 (see Table 2). While the tests are designed to assess reading comprehension and mathematics skills and knowledge, other content areas are integrated into the assessments—the reading comprehension test includes content-based passages and the reading and interpretation of graphs and charts; the mathematics test incorporates science and social studies data and experiments as sources of data for several of the strands of the curriculum.

Reading Comprehension

The North Carolina End-of-Grade Test of Reading Comprehension assesses a student's ability to read and comprehend written material that is appropriate for children performing at that grade level in terms of difficulty and content. The tests assess a student's ability to use strategies which enhance reading comprehension including acquiring, interpreting, and applying information, and reading for critical analysis and evaluation. Each test form consists of ten passages and from 3 to 8 associated questions per passage.

The reading passages on the tests are chosen to reflect the variety of reading done by students in and out of the classroom. The passages tend to be longer and more complete (compared to those typically found on standardized achievement tests) and have a high interest level for students at the particular grade level. On each test form there are four literary passages (for example, narrative, fiction, drama, and poetry), four content-based passages (science, social studies, art, health, and mathematics), and two consumer/human interest passages (instructions for performing a task, short information pieces). The variety of passages on each form permits the assessment of reading for various purposes: for literary experience, to gain information, and to perform a task.

Mathematics

The North Carolina End-of-Grade Test of Mathematics consists of two parts: mathematics computation and mathematics applications. At the student level, the two parts of the test are combined to produce one mathematics score.

The mathematics computation part assesses a student's ability to do routine computations without a calculator. In grades 3 through 7, these items are symbolic computation skills that should be mastered during the grade level. In grade 8, these items include symbolic computation skills and application skills such as estimation.

The mathematics applications part assesses a student's ability to apply mathematical principles, solve problems, and explain mathematical processes. Problems are typically posed as real situations that students at the grade level may have encountered. Students are allowed to use calculators, rulers, and protractors on this part of the test. Due to the greater proportion of application items (compared to computation items), these tests tend to require more reading than found on typical multiple-choice tests of mathematics.

Test Specifications

The content validity of the item pools was defined through a number of operations. First, the specifications for the reading and mathematics item pools were defined during the fall of 1990 and the spring of 1991. Working with groups of educators—NCDPI curriculum specialists, teachers, administrators, university professors, NCDPI testing consultants, the North Carolina Testing Commission, and others—test specifications were established for each of the content areas and grade levels assessed. The definition and refinement of the content specifications for the tests were continual processes.

Achievement test items can be classified along several dimensions. Two dimensions used to classify items for the end-of-grade tests are *difficulty level* and *thinking skill level.*

Difficulty level describes how hard the item is. Easy items are ones that about 70% of the examinees would answer correctly. Medium items are ones that about 50% to 60% of the students would answer correctly. Finally, hard items are ones that only about 20% or 30% of the students would answer correctly.

The other classification dimension, thinking skill level, describes the cognitive skills that a student must employ to solve the problem. One item may ask a student to classify several passages based on their genre (thinking skill: organizing); another question may ask the students to select the best procedure to use for solving a problem (thinking skill: evaluating).

In order to classify items by the thinking skill required, a framework to describe thinking skills must be used. The thinking skills framework used with the end-of-grade tests is from *Dimensions of Thinking* by Robert J. Marzano and others (1988). Many similar frameworks exist (for instance, that of Bloom), but *Dimensions of Thinking* was adopted by the North Carolina Department of Public Instruction in framing the revised *Standard Course of Study*. *Dimensions of Thinking* was developed through a collaborative process involving leading national experts in "thinking skills." The framework reflects current thinking in cognitive psychology, education, and philosophy. It provides a practical framework for curriculum development, instruction, assessment, and staff development.

A visual representation of the framework and a brief description of each of the dimensions of thinking are presented on the following pages. The framework should be a useful reference for curriculum development, instructional design, and in-service training.

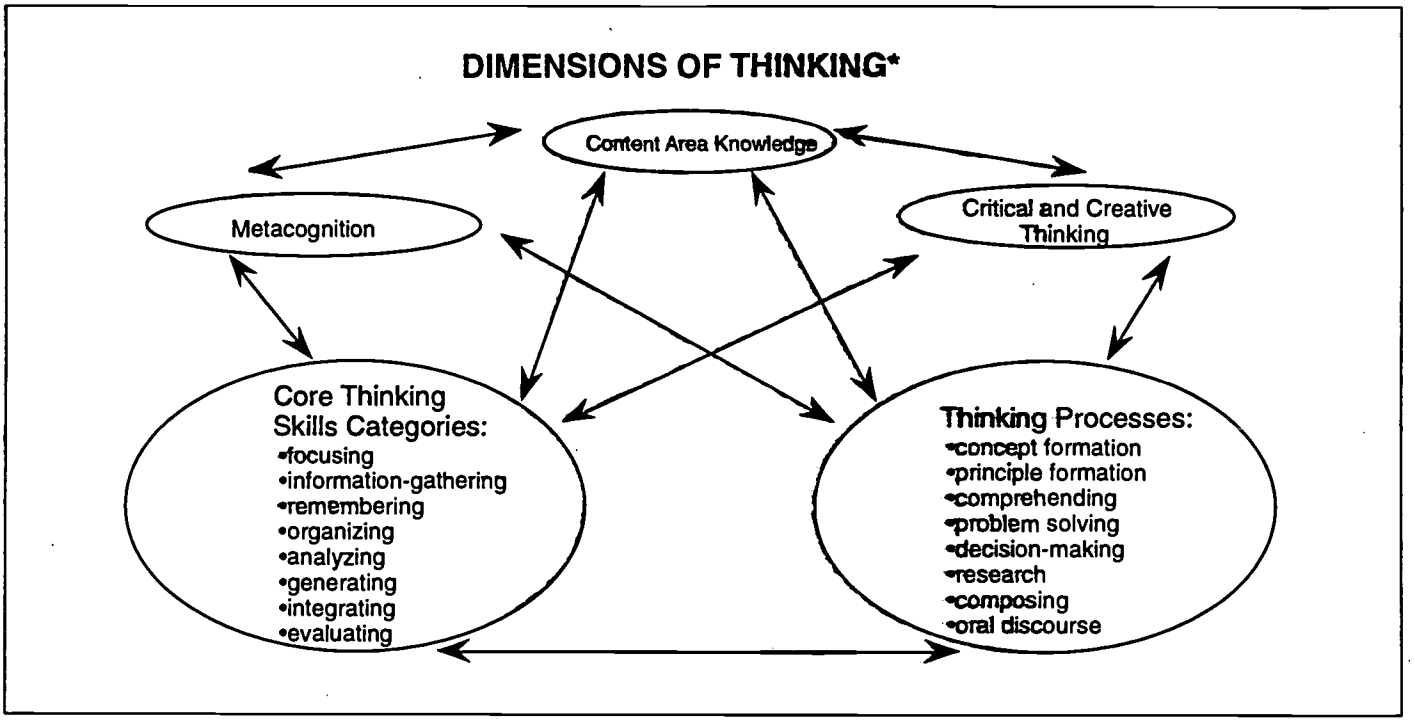

Figure 1. Thinking skills framework used with the North Carolina End-of-Grade Tests (*adapted from Robert Marzano et al., *Dimensions of Thinking*, 1988).

Metacognition Metacognition refers to awareness and control of one's thinking, including commitment, attitudes, and attention.

Critical and Creative Thinking The terms "critical" and "creative" thinking are ways of describing how we go about thinking. The two are not opposite ends of a single continuum—rather, they are complementary.

1. *Critical thinking* is "reasonable, reflective, thinking that is focused on deciding what to believe or do." Critical thinkers try to be aware of their own biases, and try to be objective and logical.
2. *Creative thinking* is "the ability to form new combinations of ideas to fulfill a need" or to get "original and otherwise appropriate results by the criteria of the domain in question."

Thinking Processes A thinking process is a relatively complex sequence of thinking skills.

1. *Concept formation*: organizing information about an entity and associating that information with a label (word).
2. *Principle formation*: recognizing relationships between or among concepts.
3. *Comprehending*: generating meaning or understanding by relating new information to prior knowledge.
4. *Problem solving*: analyzing and resolving a perplexing or difficult situation.
5. *Decision-making*: selecting from alternatives.
6. *Research*: conducting scientific inquiry.
7. *Composing*: developing a product which may be written, musical, mechanical, or artistic.
8. *Oral discourse*: talking with other people.

Core Thinking Skills A thinking skill is a relatively specific cognitive operation that can be considered a "building block" of thinking. Items are classified by the following skills because they: (1) have a sound basis in research and theoretical literature, (2) are important for students to be able to do, and (3) can be taught and reinforced in school.

Knowledge (1)

Focusing Skills—attending to selected pieces of information and ignoring others.

1. *Defining problems*: clarifying needs, discrepancies, or puzzling situations.
2. *Setting goals*: establishing direction and purpose.

Information-Gathering Skills—bringing to consciousness the relevant data needed.

3. *Observing*: obtaining information through one or more senses.
4. *Formulating questions*: seeking new information through inquiry.

Remembering Skills—storing and retrieving information.

5. *Encoding*: storing information in long-term memory.
6. *Recalling*: retrieving information from long-term memory.

Organizing (4)—arranging information so it can be used effectively.

7. *Comparing*: noting similarities and differences between or among entities.
8. *Classifying*: grouping and labeling entities on the basis of their attributes.
9. *Ordering*: sequencing entities according to a given criteria.
10. *Representing*: changing the form but not the substance of information.

Applying (5)—demonstrating prior knowledge within a new situation. The task is to bring together the appropriate information, generalizations or principles that are required to solve a problem.

Analyzing (6)—clarifying existing information by examining parts and relationships.

11. *Identifying attributes and components*: determining characteristics or parts of something.
12. *Identifying relationships and patterns*: recognizing ways in which elements are related.
13. *Identifying main idea*: identifying the central element; for example, the hierarchy of key ideas in a message or line of reasoning.
14. *Identifying errors*: recognizing logical fallacies and other mistakes and, where possible, correcting them.

Generating (7)—producing new information, meaning, or ideas.

15. *Inferring*: going beyond available information to identify what reasonably may be true.
16. *Predicting*: anticipating next events, or the outcome of a situation.
17. *Elaborating*: explaining by adding details, examples, or other relevant information.

Integrating (8)—connecting and combining information.

18. *Summarizing*: combining information efficiently into a cohesive statement.
19. *Restructuring*: changing existing knowledge structures to incorporate new information.

Evaluating (9)—assessing the reasonableness and quality of ideas.

20. *Establishing criteria*: setting standards for making judgements.
21. *Verifying*: confirming the accuracy of claims.

"Secure for Local Use" Form—Item Information

The following pages describe the items on each "Secure for Local Use" form of the North Carolina End-of-Grade Tests—Mathematics and Reading Comprehension.

For each item on a "Secure for Local Use" test form, the following information is provided:

- Curriculum goal and objective from the North Carolina *Standard Course of Study*.
- Thinking skill. The thinking skill associated with each item is based on review by teachers and other educators. Many items require the use of several thinking skills to determine the correct answer—the thinking skill listed is the predominate one.
- Correct answer.
- P-value (1998). The p-value of an item is the percentage of students who correctly responded to the item during the 1998 administration of the test.

Following the page containing the descriptive information about the items on the test form is the complete text of the goals and objectives from the North Carolina *Standard Course of Study* for Mathematics and English Language Arts (reading comprehension).

The following table of contents indicates which page each subject/grade starts on.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	7.2	Applying	C	
2	7.2	Applying	B	
3	7.2	Applying	B	
4	7.2	Applying	C	
5	7.2	Applying	C	
6	7.2	Knowledge	C	
7	7.2	Applying	D	
8	7.2	Applying	C	
9	7.6	Applying	C	
10	7.6	Knowledge	B	
11	7.6	Knowledge	D	
12	7.6	Knowledge	B	
1	1.1	Organizing	A	
2	1.2	Organizing	D	
3	1.3	Analyzing	C	
4	1.3	Knowledge	B	
5	1.4	Generating	C	
6	1.5	Organizing	D	
7	1.7	Analyzing	B	
8	1.8	Organizing	B	
9	2.1	Organizing	A	
10	2.2	Analyzing	B	
11	2.3	Analyzing	D	
12	2.4	Organizing	A	
13	2.4	Organizing	C	
14	2.5	Organizing	D	
15	2.5	Organizing	B	
16	2.6	Organizing	A	
17	3.1	Organizing	D	
18	3.2	Analyzing	B	
19	3.2	Generating	C	
20	3.3	Analyzing	D	
21	3.3	Analyzing	D	
22	3.4	Analyzing	A	
23	3.5	Generating	C	
24	3.6	Analyzing	D	
25	4.01	Applying	D	
26	4.01	Generating	C	
27	4.03	Organizing	A	
28	4.04	Analyzing	A	
29	4.05	Applying	C	
30	4.06	Analyzing	C	
31	4.06	Applying	C	
32	4.07	Applying	B	
33	4.08	Applying	D	
34	4.09	Applying	A	
35	4.10	Applying	D	
36	4.13	Generating	D	
37	5.1	Analyzing	B	
38	5.1	Analyzing	A	
39	5.1	Analyzing	C	
40	5.2	Analyzing	A	
41	5.2	Analyzing	A	
42	5.2	Analyzing	C	
43	5.3	Applying	C	
44	5.3	Applying	B	
45	5.3	Applying	C	
46	5.5	Integrating	B	
47	5.6	Applying	B	
48	6.1	Applying	C	
49	6.2	Knowledge	B	
50	6.3	Applying	B	
51	6.4	Organizing	B	
52	6.4	Knowledge	A	
53	6.5	Organizing	D	
54	6.6	Organizing	A	
55	6.7	Analyzing	B	
56	7.1	Knowledge	A	
57	7.3	Applying	D	
58	7.3	Applying	D	
59	7.4	Applying	A	
60	7.5	Applying	D	
61	7.5	Organizing	B	
62	7.7	Applying	C	
63	7.8	Applying	A	
64	7.8	Applying	B	
65	5.3	Applying	C	
66	7.3	Applying	C	
67	7.4	Applying	D	
68	7.8	Applying	A	

Goal/ Objective	Description of Goal/Objective
1.0	The learner will identify and use numbers to 1,000 and beyond.
1.1	Group objects/model 3-digit numbers; relate models to standard and expanded notations.
1.2	Compare and order numbers less than 1000.
1.3	Read, write, and use whole numbers appropriately in a variety of ways.
1.4	Estimate; approximate multiples of 10 or 100.
1.5	Model odd and even numbers; generalize ways to determine odd or even.
1.6	Model fractions and mixed numbers; describe relationships of parts to whole.
1.7	Relate fractions and mixed numbers to models and pictures for both regions and sets.
1.8	Compare fraction models; describe comparisons and explain different names for the same fractional parts.
2.0	The learner will demonstrate an understanding and use of geometry.
2.1	Classify plane and solid figures; describe rules for grouping.
2.2	Construct with cubes a solid to match a given model or picture.
2.3	Describe a 3-dimensional object from different perspectives.
2.4	Identify and model symmetry with concrete materials, drawings, and computer graphics.
2.5	Investigate congruence with concrete materials, drawings, and computer graphics.
2.6	Observe and describe geometry in the environment.
3.0	The learner will demonstrate an understanding of classification, pattern, and seriation.
3.1	Organize objects or ideas into groups; describe attributes of groups and rules for sorting.
3.2	Describe (demonstrate) patterns in skip counting and multiplication; continue sequences beyond memorized/modeled numbers.
3.3	Extend/create geometric and numerical sequences; describe patterns.
3.4	Observe/analyze patterns; describe pattern properties and given examples of similar patterns in varied forms.
3.5	Use patterns to make predictions and solve problems.
3.6	Use understanding of seriation in real life situations.
3.7	Explore number patterns with calculators.

Goal/ Objective	Description of Goal/Objective
4.0	The learner will understand and use standard units of metric and customary measure.
4.1	Estimate length and height; measure with appropriate tools using inches, feet, yards, centimeters and meters.
4.2	Estimate weight in ounces, pounds, grams and kilograms; measure and describe results.
4.3	Estimate capacity; measure with appropriate units (teaspoons, tablespoons, cups, pints, quarts, liters).
4.4	Tell/write time to nearest minute with digital and traditional clocks.
4.5	Use calendar and appropriate vocabulary to describe time and to solve problems.
4.6	Read Celsius and Fahrenheit thermometers; relate temperatures to everyday situations.
4.7	Model/compare units within the same measurement system.
4.8	Evaluate sets of coins; create equivalent amounts with different coins.
4.9	Estimate costs of items; identify coins/bills for purchase; make change less than $5.00.
4.10	Read/write given amounts of money in decimal form up to $5.00.
4.11	Explore concept of area by covering figures with concrete materials; describe results of experiments.
4.12	Explore concept of perimeter with nonstandard and standard units; explain results.
4.13	Estimate results; solve non-routine and real life problems using measurement concepts and procedures.
5.0	The learner will use mathematics reasoning and solve problems.
5.1	Identify and describe problems in given situations.
5.2	Develop stories to illustrate problem situations and number sentences.
5.3	Solve routine and non-routine problems using a variety of strategies, such as use models and "act out", use drawings, diagrams, and organized lists, use spatial visualization, logical thinking, estimation, guess and check and patterns.
5.4	Explore different methods of solving problems, including using manipulatives, pencil and paper, mental computation, calculators, and computers.
5.5	Describe processes used in finding solutions; suggest alternate strategies/methods.
5.6	Discuss reasonableness of solutions and completeness of answers.

Goal/ Objective	Description of Goal/Objective
6.0	The learner will demonstrate an understanding of data collection, display, and interpretation.
6.1	Gather and organize data from surveys and classroom experiments, including data collected over a period of time.
6.2	Display data on charts and graphs; summarize and explain information.
6.3	Interpret/make pictographs and bar graphs where each symbol/block represents multiple units.
6.4	Use charts and graphs as sources of information; identify main idea, draw conclusions, and make predictions.
6.5	Locate a designated position using ordered pairs named by letters and numbers.
6.6	Locate points on a coordinate grid; name with ordered pairs.
6.7	Use a time line to display a sequence of events.
7.0	The learner will compute with whole numbers.
7.1	Describe and illustrate the connection between models used to demonstrate multiple-digit addition and subtraction and the algorithms.
7.2	Model subtraction with zeros; estimate results and demonstrate proficiency with 2-digit and 3-digit addition and subtraction.
7.3	Solve meaningful problems using addition and subtraction facts and algorithms; use a calculator in situations involving large numbers and many addends.
7.4	Compute total costs of items up to $5.00 and change from up to $5.00.
7.5	Demonstrate with a variety of concrete models multiplication and division, including properties of multiplication (identity, commutative, associative).
7.6	Memorize multiplication facts/tables: 2s, 5s, 1s, 10s, 9s; explore commutativity and all other facts with concrete materials.
7.7	Model division with 1-digit divisor as sharing equally and as repeated subtraction; record results.
7.8	Use models to solve real life problems involving multiplication/division.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	7.11	Analyzing	C	
2	7.11	Applying	C	
3	7.11	Analyzing	B	
4	7.11	Analyzing	D	
5	7.12	Analyzing	C	
6	7.12	Knowledge	C	
7	7.12	Analyzing	B	
8	7.12	Analyzing	C	
9	7.08	Knowledge	A	
10	7.08	Knowledge	B	
11	7.08	Knowledge	D	
12	7.08	Knowledge	B	
1	1.2	Knowledge	C	
2	1.3	Organizing	A	
3	1.3	Organizing	D	
4	1.4	Analyzing	C	
5	1.5	Organizing	C	
6	1.6	Analyzing	D	
7	1.6	Analyzing	A	
8	1.7	Analyzing	C	
9	1.8	Applying	B	
10	1.9	Analyzing	D	
11	1.9	Analyzing	A	
12	2.1	Organizing	D	
13	2.2	Generating	B	
14	2.3	Knowledge	C	
15	2.4	Knowledge	B	
16	2.5	Organizing	D	
17	2.6	Applying	A	
18	2.6	Applying	D	
19	3.1	Generating	C	
20	3.2	Generating	C	
21	3.3	Analyzing	A	
22	3.4	Analyzing	D	
23	3.5	Generating	C	
24	3.6	Applying	C	
25	3.7	Applying	B	
26	4.01	Applying	B	
27	4.02	Applying	A	
28	4.03	Applying	A	
29	4.04	Analyzing	D	
30	4.06	Generating	B	
31	4.06	Generating	D	
32	4.07	Applying	C	
33	4.08	Organizing	D	
34	4.09	Applying	B	
35	4.10	Generating	A	
36	4.11	Analyzing	B	
37	4.11	Analyzing	B	
38	5.1	Analyzing	A	
39	5.1	Evaluating	C	
40	5.3	Analyzing	A	
41	5.3	Generating	D	
42	5.4	Evaluating	C	
43	5.4	Generating	C	
44	5.6	Applying	A	
45	5.6	Organizing	D	
46	5.6	Evaluating	C	
47	5.7	Evaluating	A	
48	5.8	Knowledge	A	
49	6.1	Integrating	C	
50	6.2	Generating	D	
51	6.3	Integrating	B	
52	6.4	Analyzing	D	
53	6.5	Organizing	D	
54	6.6	Applying	A	
55	6.7	Analyzing	B	
56	7.02	Organizing	B	
57	7.03	Applying	A	
58	7.04	Organizing	B	
59	7.05	Knowledge	B	
60	7.06	Applying	D	
61	7.07	Applying	A	
62	7.08	Applying	A	
63	7.08	Applying	B	
64	7.09	Applying	C	
65	7.10	Analyzing	A	
66	1.1	Analyzing	D	
67	7.01	Applying	C	
68	5.5	Evaluating	A	

Goal/ Objective	Description of Goal/Objective
1.0	The learner will identify and use rational numbers.
1.1	Within meaningful contexts express numbers (up to 6 digits) in a variety of ways, including oral and written forms using standard and expanded notation.
1.2	Use models to explain how the number system is based on 10 and identify the place value of each digit in a multi-digit numeral.
1.3	Compare and order numbers less than one million.
1.4	In real world situations, discuss when it is appropriate to round numbers; round numbers to an appropriate place.
1.5	Use regions, sets, number lines and other concrete and pictorial models to represent fractions and mixed numbers; relate symbols to the models.
1.6	Use models and pictures to compare fractions including equivalent fractions and mixed numbers; explain the comparison.
1.7	Use models and pictures to demonstrate the value of decimal numerals with tenths and hundredths; show decimals as an extension of the base 10 system.
1.8	Use models and pictures to compare decimals (wholes, tenths, hundredths) which relate to real world situations; record and real results.
1.9	Use models and pictures to establish the relationship between whole numbers, decimals, and fractions; describe using appropriate language.
2.0	The learner will demonstrate an understanding and use properties and relationships of geometry.
2.1	Use manipulatives, pictorial representations, and appropriate geometric vocabulary (e.g. sides, angles, and vertices) to identify properties of polygons and other two-dimensional figures.
2.2	Use manipulatives and appropriate geometric vocabulary (e.g. edges, faces, and vertices) to identify properties of polyhedra and other three-dimensional figures.
2.3	Explore turns, flips, and slides with figures.
2.4	Make models of line segments and their midpoints, intersecting lines, parallel lines, and perpendicular lines, using materials such as geoboards, paper-folding, straws, and computer graphics.
2.5	Use a variety of models to illustrate acute, right, and obtuse angles.
2.6	Relate concrete models of lines and angles to pictorial representations and to examples in the environment.

Goal/ Objective	Description of Goal/Objective
3.0	The learner will demonstrate an understanding of patterns and relationships.
3.1	Identify and describe mathematical patterns and relationships that occur in the real world.
3.2	Demonstrate or describe patterns in geometry, data collection, and arithmetic operations.
3.3	Identify patterns as they occur in mathematical sequences.
3.4	Extend and make geometric patterns.
3.5	Given a table of number pairs, find a pattern and extend the table.
3.6	Use patterns to make predictions and solve problems; use calculators when appropriate.
3.7	Use intuitive methods, inverse operations, and other mathematical relationships to find solutions to open sentences.
4.0	The learner will understand and use standard units of metric and customary measure.
4.1	Select an appropriate unit and measure length (inches, feet, yards, centimeters and meters).
4.2	Weigh objects using appropriate units and tools (ounces, pounds, grams, kilograms).
4.3	Measure capacity with appropriate units (milliliters, teaspoons, tablespoons, cups, pints).
4.4	Identify a model that approximates a given capacity unit (cup, quart, gallon, milliliter, and liter).
4.5	Estimate the number of units of capacity in a given container and check the estimate by actual measurement.
4.6	Compare units of length, capacity, and weight within the same system.
4.7	Explore elapsed time problems using clocks and calendars.
4.8	Use appropriate language and proper notation to express and compare money amounts.
4.9	Use models to develop the relationship between the total number of square units and the length and width of rectangles. Measure perimeter and determine area of rectangles using grids.
4.10	Find the approximate area of regular and irregular figures using grids.
4.11	Formulate and solve meaningful problems involving length, weight, time, capacity, and temperature; and verify reasonableness of answers.

Goal/ Objective	Description of Goal/Objective
5.0	The student will solve problems and reason mathematically.
5.1	Develop an organized approach to solving problems involving patterns, relations, computation, measurement, geometry, numeration, graphing, probability and statistics.
5.2	Communicate an understanding of a problem through oral and written discussion.
5.3	Determine if there is sufficient data to solve a problem.
5.4	In solving problems, select appropriate strategies such as: act it out, make a model, draw a picture, make a chart or graph, look for patterns, make a simpler problem, use logic, work backwards, guess and check, break into parts.
5.5	Estimate solutions to problems and justify.
5.6	Solve problems by observation and/or computation, using calculators and computers when appropriate.
5.7	Verify and interpret results with respect to the original problem. Discuss alternate methods for solutions.
5.8	Formulate engaging problems including ones from every day situations.
6.0	The learner will demonstrate an understanding and use of graphing, probability, and statistics.
6.1	Collect, organize, and display data from surveys, research, and classroom experiments, including data collected over a period of time. Include data from other disciplines such as science, physical education, and social studies.
6.2	Formulate questions and interpret information orally and in writing including main idea, from charts, tables, tallies and graphs (bar, line, stem and leaf, pictographs, circle).
6.3	As a group, display the same data in a variety of ways; discuss advantages and disadvantages of each form, including ease of creation and purpose of graph.
6.4	Explore range, median, and mode as ways of describing a set of data.
6.5	Name the ordered pair of a point on a grid; plot positions named by ordered pairs on a coordinate grid.
6.6	Use ordered pairs in a variety of engaging situations (e.g. map reading, treasure hunts, games, and designs).
6.7	Show all possible ways to sequence a given set of objects; list and explain all possible outcomes in a given situation.

Goal/ Objective	Description of Goal/Objective
7.0	The learner will compute with rational numbers.
7.1	Estimate results and solve meaningful problems involving addition and subtraction of multi-digit numbers, including those with two or three zeros. Use a calculator in situations involving large numbers (more than 4 digits) or more than 3 addends.
7.2	Use mental math skills to approximate answers and to solve problems, using strategies such as estimation and clustering.
7.3	Explain multiplication through the use of various models or by giving realistic examples.
7.4	Model and explain division in a variety of ways such as sharing equally, repeated subtraction, and rectangular arrays.
7.5	Memorize multiplication facts and relate to division facts.
7.6	Demonstrate with models special properties of multiplication: commutative, associative, and identity; and the relationship of multiplication and division.
7.7	Estimate results; then solve meaningful problems using the multiplication algorithm with 1-digit times 1- to 3-digit and two 2-digit numbers where one is a multiple of 10.
7.8	Solve division problems with single-digit divisors and no renaming.
7.9	Estimate results; then use calculators and computers to solve problems involving multiple-digit numbers.
7.10	Estimate and use models and pictures to add and subtract decimals, explaining the processes and recording results.
7.11	Add/subtract whole numbers.
7.12	Multiply 1-digit times 1- to 3-digits and two 2-digit numbers where one is a multiple of 10.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)	Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	7.01	Knowledge	B		29	3.6	Integrating	A	
2	7.01	Applying	B		30	4.1	Applying	C	
3	7.03	Applying	B		31	4.2	Evaluating	A	
4	7.03	Applying	B		32	4.2	Organizing	D	
5	7.08	Applying	B		33	4.3	Analyzing	C	
6	7.08	Applying	D		34	4.4	Analyzing	A	
7	7.08	Applying	C		35	4.5	Applying	B	
8	7.08	Applying	B		36	4.6	Applying	B	
9	7.15	Applying	D		37	4.6	Applying	C	
10	7.15	Applying	C		38	5.1	Applying	B	
11	7.15	Applying	A		39	5.1	Integrating	A	
12	7.15	Applying	B		40	5.1	Analyzing	D	
1	1.01	Organizing	A		41	5.2	Integrating	D	
2	1.02	Analyzing	C		42	5.3	Analyzing	D	
3	1.03	Applying	D		43	5.3	Evaluating	D	
4	1.04	Applying	A		44	5.4	Integrating	D	
5	1.04	Applying	B		45	5.4	Applying	B	
6	1.05	Applying	D		46	5.5	Applying	A	
7	1.05	Applying	B		47	5.6	Applying	D	
8	1.06	Applying	B		48	5.6	Applying	A	
9	1.07	Applying	C		49	5.7	Integrating	D	
10	1.09	Knowledge	B		50	6.1	Analyzing	B	
11	1.10	Analyzing	D		51	6.1	Evaluating	D	
12	2.01	Analyzing	A		52	6.3	Knowledge	A	
13	2.02	Knowledge	A		53	6.4	Applying	B	
14	2.03	Analyzing	A		54	6.5	Generating	B	
15	2.04	Applying	D		55	6.7	Evaluating	A	
16	2.05	Applying	B		56	6.8	Generating	B	
17	2.06	Knowledge	B		57	7.01	Applying	D	
18	2.06	Applying	C		58	7.03	Applying	C	
19	2.07	Knowledge	B		59	7.04	Generating	D	
20	2.08	Applying	C		60	7.05	Applying	C	
21	2.09	Knowledge	C		61	7.07	Applying	C	
22	3.1	Generating	D		62	7.08	Applying	C	
23	3.1	Generating	A		63	7.09	Analyzing	A	
24	3.2	Analyzing	D		64	7.10	Evaluating	B	
25	3.3	Analyzing	B		65	7.12	Knowledge	C	
26	3.4	Generating	C		66	1.08	Applying	B	
27	3.4	Generating	D		67	7.13	Applying	D	
28	3.6	Generating	B		68	6.2	Applying	D	

Goal/ Objective	Description of Goal/Objective
1.0	The learner will identify and use rational numbers.
1.1	Apply place value skills through millions in real world situations including reading, writing, approximating, and comparing numbers in a variety of forms.
1.2	Demonstrate and explain the relationship among whole numbers, decimals, and fractions using various models and other representations, choosing the most appropriate form for the task.
1.3	Find multiples and factors of a number, explain the process.
1.4	Relate exponential notation to repeated multiplication.
1.5	Decide whether a given number less than 100 is prime or composite; explain.
1.6	In meaningful contexts, name equivalent fractions at the symbolic level. Explain the equivalence.
1.7	In realistic situations use symbols to compare decimals (wholes, tenths, hundredths, and thousandths); explain the comparison.
1.8	Read, write, and use decimals and fractions in various forms.
1.9	Tell whether a fraction is closer to 0, 1/2, or 1; round a mixed fraction or decimal to the nearest whole number.
1.10	In meaningful contexts compare fractions, explaining the rationale and using common denominators when appropriate.
2.0	The learner will demonstrate an understanding and use properties and relationships of geometry.
2.1	Use concrete and pictorial representations, and appropriate vocabulary to compare and classify polygons and polyhedra.
2.2	Create models of polyhedra (cubes, cylinders, rectangles, prisms, pyramids) using a variety of materials.
2.3	Use designs, concrete models, and computer graphics to illustrate reflections, rotations, and translations of plane figures and record your observations.
2.4	Draw circles with a compass and identify radius, diameter, chord, center and circumference.
2.5	Explore the relationship between radius and diameter; circumference and diameter.
2.6	Use a protractor to draw and measure acute, right, and obtuse angles.
2.7	Identify and label the vertex, rays, interior and exterior of an angle.
2.8	Use a variety of quadrilaterals and triangles to draw a conclusion about the angles' measures.
2.9	Use geometric concepts and spatial visualization to estimate results and solve problems.
2.10	Explore topics which relate geometry to other strands of mathematics.

Goal/ Objective	Description of Goal/Objective
3.0	The learner will demonstrate an understanding of patterns and relationships.
3.1	Identify and describe patterns as they occur in numeration, computation, geometry, graphs and other applications.
3.2	Investigate patterns that occur when changing numerators and denominators of fractions beginning with concrete models and extending to calculator investigations.
3.3	Use patterns to solve problems, make generalizations, and predict results.
3.4	Create a set of ordered pairs by using a given rule.
3.5	Given a group of ordered pairs, identify a rule to generate them or new pairs in the group, using calculators or computers where appropriate.
3.6	Model the concept of a variable using realistic situations.
4.0	The learner will understand and use standard units of metric and customary measure.
4.1	Use and make models to demonstrate formulas for areas and perimeters of squares and rectangles.
4.2	Use models to compare units of area within the same system.
4.3	Use models to explore and compare given units of volume (cubic inch, cubic foot, cubic yard, cubic centimeter, and cubic meter).
4.4	Describe and record the relationships between perimeter and area, and area and volume.
4.5	Identify and demonstrate specific relationships of units within the same measurement system.
4.6	Solve problems involving applications of length, weight, time, capacity, temperature, perimeter, and area. Check reasonableness of answer.
5.0	The student will solve problems and reason mathematically.
5.1	Use an organized approach to solve multi-step problems involving numeration, geometry, measurement, patterns, relations, graphing, computation, probability and statistics.
5.2	Communicate an understanding of a problem using models, known facts, properties, and relationships.
5.3	Determine if there is sufficient information to solve a problem; identify missing and extraneous data.
5.4	Use appropriate strategies to solve problems such as restate problems, use models, patterns, classify, sketches, simpler problem, lists, number sentences, guess and check.
5.5	In problem solving situations, use calculators and computers as appropriate.
5.6	Verify and interpret the results with respect to the original problem. Identify several strategies for solving a problem.
5.7	Make generalizations and apply them to new problem situations.

Goal/ Objective	Description of Goal/Objective
6.0	The learner will demonstrate an understanding and use of graphing, probability, and statistics.
6.1	Explain the kinds of decisions that need to be made in constructing graphs.
6.2	Systematically collect, organize, appropriately display and interpret data both orally and in writing using information from many content areas.
6.3	Explore increasingly complex displays of data, including multiple sets of data on the same graph, computer applications, and Venn diagrams.
6.4	Use range, median and mode as ways of describing a set of data and explore the use of statistics in science, social studies, and the media.
6.5	Explore proportions by reducing or enlarging drawings using grids.
6.6	Plot points that represent ordered pairs of data from many different sources such as economics, science experiments, and recreational activities.
6.7	Investigate probabilities by experimenting with devices that generate random outcomes (i.e. coins, number cubes, spinners), discussing probable outcomes.
6.8	Use a fraction to describe the probability of an event.
6.9	In a group compare experimental results with (theoretical) expected results for increasingly larger sample sizes.
7.0	The learner will compute with rational numbers.
7.1	Estimate products and multiply 2-digit numbers.
7.2	Explain the division process with 1- and 2-digit divisors.
7.3	Justify, estimate, and solve division problems with divisors that are less than 10 or multiples of 10.
7.4	Explain what happens when zeros are involved in computation.
7.5	Use models to add and subtract fractions with like denominators.
7.6	Estimate results; add and subtract fractions with like denominators in the context of problem solving situations.
7.7	Use models and pictures to find a fraction of a whole number; explain and record results.
7.8	Estimate results and compute sums and differences, with decimal numbers.
7.9	Use models and pictures to multiply a whole number times a decimal number; record and explain results.
7.10	Estimate and compute products of decimal numbers with 2-digit factors.
7.11	Estimate products of multi-digit decimal numbers; find results with a calculator if exact answer is required.
7.12	Compare whole number remainders in division to decimal remainders when using a calculator.
7.13	Compute averages within a context; use calculator if appropriate.
7.14	Within the context of problem solving situations, add, subtract, and multiply decimal numbers.
7.15	Add/subtract fractions with like denominators.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	7.16	Knowledge	C	
2	7.16	Knowledge	B	
3	7.03	Applying	C	
4	7.03	Knowledge	B	
5	7.14	Applying	C	
6	7.14	Applying	C	
7	7.14	Applying	A	
8	7.14	Applying	C	
9	7.15	Applying	C	
10	7.15	Applying	B	
11	7.15	Applying	A	
12	7.15	Applying	D	
1	1.1	Applying	A	
2	1.1	Knowledge	D	
3	1.2	Organizing	A	
4	5.4	Applying	C	
5	1.4	Applying	A	
6	1.4	Analyzing	C	
7	1.5	Organizing	A	
8	1.6	Knowledge	D	
9	1.8	Knowledge	B	
10	2.1	Organizing	C	
11	2.1	Applying	D	
12	2.2	Applying	A	
13	2.2	Applying	A	
14	2.4	Knowledge	C	
15	2.4	Knowledge	C	
16	2.5	Analyzing	C	
17	2.5	Analyzing	D	
18	2.7	Applying	B	
19	3.1	Applying	C	
20	3.1	Applying	C	
21	3.3	Applying	B	
22	3.3	Applying	C	
23	3.4	Applying	B	
24	3.5	Analyzing	D	
25	3.5	Generating	D	
26	3.6	Applying	C	
27	4.1	Applying	C	
28	4.1	Applying	C	
29	4.2	Applying	B	
30	4.3	Applying	A	
31	4.4	Generating	D	
32	4.5	Applying	D	
33	4.5	Analyzing	A	
34	4.6	Applying	C	
35	5.1	Analyzing	B	
36	5.1	Applying	D	
37	5.1	Generating	B	
38	5.1	Analyzing	C	
39	5.2	Analyzing	B	
40	5.2	Applying	D	
41	5.2	Applying	C	
42	5.3	Analyzing	D	
43	5.4	Analyzing	B	
44	5.4	Applying	A	
45	5.4	Analyzing	D	
46	5.5	Evaluating	B	
47	6.1	Analyzing	B	
48	6.1	Applying	B	
49	6.1	Evaluating	C	
50	6.2	Analyzing	B	
51	6.2	Analyzing	C	
52	6.2	Analyzing	D	
53	6.4	Applying	A	
54	6.5	Evaluating	D	
55	6.6	Analyzing	D	
56	6.7	Analyzing	A	
57	6.7	Generating	D	
58	6.8	Generating	C	
59	7.01	Knowledge	A	
60	7.02	Applying	B	
61	7.04	Applying	A	
62	7.04	Knowledge	B	
63	7.06	Analyzing	B	
64	7.07	Knowledge	D	
65	7.08	Applying	A	
66	7.09	Applying	B	
67	7.11	Applying	C	
68	7.12	Analyzing	C	

Goal/ Objective	Description of Goal/Objective
1.0	The learner will demonstrate an understanding and use of rational numbers.
1.1	Use models to relate percent to fractions and decimals; record, read, and explain.
1.2	Use models and pictures to demonstrate ratios, proportions and percents; explain relationships.
1.3	Read, write, and use numbers in various forms, including fractions, decimals, percents, and exponential notations, choosing the appropriate form for a given task.
1.4	Find the prime factorization of a number less than 100.
1.5	Use prime factorization to investigate common factors and common multiples using a calculator when appropriate.
1.6	Explore relationships among whole numbers, fractions, decimals, and percents using money, concrete models, or a calculator.
1.7	Explore other numeration systems, including ancient number systems and alternate bases.
1.8	Explore the meaning of integers in real-life situations.
2.0	The learner will demonstrate an understanding and use properties and relationships of geometry.
2.1	Build models of 3-dimensional figures (prisms, pyramids, cones, and other solids); describe and record their properties.
2.2	Classify angles (interior, exterior, complementary, supplementary) and pairs of lines including skew lines.
2.3	Construct congruent segments and congruent angles. Construct bisectors of line segments; using a straight edge and compass.
2.4	Identify and distinguish among similar, congruent, and symmetric figures; name corresponding parts.
2.5	Recognize the results of translations, reflections, and rotations using technology when appropriate.
2.6	Explore changes in shape through stretching, shrinking and twisting.
2.7	Recognize geometry in the environment (e.g. art, nature, architecture).

Goal/ Objective	Description of Goal/Objective
3.0	The learner will demonstrate an understanding of patterns, relationships and pre-algebra.
3.1	Represent number patterns in a variety of ways including the use of calculators and computers.
3.2	Use patterns to explore the rules for divisibility.
3.3	Use graphs and tables to represent relations of ordered pairs, using a calculator or a computer where appropriate; describe the relationships.
3.4	Identify and use patterning as a strategy to solve problems.
3.5	Use realistic examples or models to represent concepts and properties of variables, expressions, and equations. (Identity property of zero, Identity property of one.)
3.6	Use the order of operations to simplify numerical expressions, verifying the results with a calculator or computer.
4.0	The learner will demonstrate an understanding and use of measurement.
4.1	Convert measures of length, area, volume, capacity and weight expressed in a given unit to other units in the same measurement system.
4.2	Determine whether a given measurement is precise enough for the specific situation; determine when estimates are sufficient for the measurement situation.
4.3	Explore the relationship of areas of triangles and rectangles with the same base and height. Use models to demonstrate formulas for finding areas of triangles, parallelograms, and circles.
4.4	Explore the effect on area and perimeter when changing one or two of the dimensions of a rectangle.
4.5	Develop the concept of volume for rectangular solids as the product of area of base and height using models.
4.6	Estimate solutions and solve problems related to volumes of rectangular solids.
5.0	The student will solve problems and reason mathematically.
5.1	Use an organized approach to solve non-routine and increasingly complex problems involving numeration, geometry, pre-algebra, measurement, graphing, computation, probability and statistics.
5.2	Analyze problem situations and apply appropriate strategies for solving them.
5.3	Use inductive and deductive reasoning to solve problems.
5.4	Select an appropriate method for solving problems including estimation, observation, formulas, mental math, paper and pencil calculation, calculator and computers.
5.5	Make conjectures and arguments and identify various points of view.

Goal/ Objective	Description of Goal/Objective
6.0	The learner will demonstrate an understanding and use of graphing, probability, and statistics.
6.1	Create and evaluate graphic representations of data, including circle graphs.
6.2	Use measures of central tendency (mean, median, and mode) and range to describe meaningful data; compare two sets of unequal data.
6.3	Display data using computer software and explore the use of spreadsheets.
6.4	Locate ordered pairs in meaningful situations using whole numbers, fractions, and decimals in the coordinate plane.
6.5	Estimate the likelihood of certain events from experiments or graphical data.
6.6	Interpret a statistical statement and discuss the extent to which the results of a sample can be generalized.
6.7	Find probabilities of simple events and discuss the implications.
6.8	Design an experiment to test a theoretical probability; record and explain results.
7.0	The learner will compute with rational numbers.
7.1	Use whole number operations to solve real world applications, demonstrating competence with and without calculators (multiplication and division up to 3-digits by 2-digits).
7.2	Select appropriate strategies, solve a variety of application problems, and justify the selection.
7.3	Divide decimal numbers, record results and explain procedure (1- and 2-digit divisors).
7.4	Within a context, estimate results and apply appropriate operations with decimals.
7.5	Use models and pictures to demonstrate multiplication and division of fractions and mixed numbers, record and explain results.
7.6	Within a meaningful context, use estimation and operations with fractions less than one.
7.7	In problem situations, use estimation and operations with fractions and mixed numbers.
7.8	In meaningful contexts develop the concept of adding and subtracting integers; record results.
7.9	Translate word problems into number sentences that use integers.
7.10	Estimate percents in real world situations and justify the estimate.
7.11	Use mental math to solve problems involving simple fractions, decimals, and percents.
7.12	Relate common fractions to frequently used percents; estimate and calculate using these percents (multiples of 10, 25, 33-1/3, 66-2/3, 75).
7.13	Use ratios and proportions to explore probability and other interesting problems, discussing reasonableness of results.
7.14	Add/subtract fractions with unlike denominators.
7.15	Multiply/divide fractions with unlike denominators.
7.16	Multiply decimal numbers (up to 3-digits by 2-digits).

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	7.2	Applying	C	
2	7.2	Knowledge	C	
3	7.2	Knowledge	B	
4	7.2	Knowledge	B	
5	7.6	Knowledge	C	
6	7.6	Knowledge	D	
7	7.6	Knowledge	A	
8	7.6	Knowledge	A	
1	1.1	Applying	D	
2	1.2	Organizing	D	
3	1.2	Organizing	A	
4	1.3	Knowledge	D	
5	1.4	Knowledge	B	
6	1.5	Applying	C	
7	1.6	Generating	C	
8	1.7	Applying	D	
9	2.1	Analyzing	B	
10	2.2	Applying	B	
11	2.3	Applying	A	
12	2.3	Integrating	A	
13	2.4	Applying	D	
14	2.6	Analyzing	D	
15	2.6	Analyzing	C	
16	2.7	Analyzing	C	
17	3.1	Applying	D	
18	3.1	Knowledge	B	
19	3.1	Generating	A	
20	3.2	Integrating	D	
21	3.2	Generating	C	
22	3.3	Knowledge	A	
23	3.3	Knowledge	B	
24	3.3	Organizing	B	
25	3.4	Applying	A	
26	3.4	Applying	D	
27	3.5	Organizing	B	
28	3.5	Knowledge	B	
29	4.1	Applying	D	
30	4.1	Applying	C	
31	4.1	Applying	C	
32	4.2	Organizing	B	
33	4.3	Applying	B	
34	4.3	Analyzing	A	
35	4.4	Applying	D	
36	4.4	Applying	A	
37	4.6	Knowledge	D	
38	4.6	Knowledge	A	
39	5.1	Applying	C	
40	5.1	Applying	B	
41	5.1	Analyzing	A	
42	5.2	Applying	C	
43	5.2	Applying	A	
44	5.2	Applying	D	
45	5.2	Applying	C	
46	5.2	Applying	D	
47	5.3	Evaluating	D	
48	5.3	Evaluating	A	
49	5.4	Applying	B	
50	5.4	Analyzing	D	
51	5.5	Applying	B	
52	5.5	Generating	C	
53	6.1	Integrating	C	
54	6.2	Evaluating	C	
55	6.3	Knowledge	B	
56	6.4	Generating	C	
57	6.5	Evaluating	B	
58	6.6	Applying	D	
59	6.7	Applying	B	
60	6.8	Applying	A	
61	7.1	Applying	A	
62	7.1	Analyzing	A	
63	7.1	Analyzing	B	
64	7.2	Applying	C	
65	7.2	Analyzing	C	
66	7.2	Applying	B	
67	7.3	Applying	A	
68	7.3	Applying	A	
69	7.4	Applying	C	
70	7.4	Applying	A	
71	7.5	Applying	D	
72	7.5	Applying	C	

Goal/ Objective	Description of Goal/Objective
1.0	The learner will demonstrate an understanding and use of real numbers.
1.1	Use models to represent positive and negative rational numbers.
1.2	Compare and order rational numbers in meaningful contexts.
1.3	Express whole numbers in scientific notation; convert scientific notation to standard form; explore the use of scientific notation.
1.4	Use exponential notation to express prime factorization of numbers less than 100.
1.5	Within meaningful contexts use estimation techniques with rational numbers; justify the strategy chosen.
1.6	Use geometric models to develop the meaning of the square and the positive square root of a number; estimate square root and find square roots on the calculator.
1.7	In meaningful contexts, relate concepts of ratio, proportion, and percent.
2.0	The learner will demonstrate an understanding and use properties and relationships of geometry.
2.1	Make constructions of perpendicular and parallel lines using straight edge and compass.
2.2	Use the concepts and relationships of geometry to solve problems.
2.3	Use models to develop the concept of the Pythagorean Theorem.
2.4	Identify applications of geometry in the environment.
2.5	Given models of 3-dimensional figures, draw representations.
2.6	Given the end, side, and top views of 3-dimensional figures, build models.
2.7	Graph on a coordinate plane geometric shapes and congruent figures.
3.0	The learner will demonstrate an understanding of pre-algebra.
3.1	Describe, extend, analyze and create a wide variety of patterns to investigate relationships and solve problems.
3.2	Use concrete materials as models to develop the concept of operations with variables.
3.3	Use concrete, informal and formal methods to model and solve simple equations.
3.4	Investigate and evaluate algebraic expressions using mental calculations, pencil and paper and calculators where appropriate.
3.5	Given a simple equation, formulate a problem.

Goal/ Objective	Description of Goal/Objective
4.0	The learner will demonstrate an understanding and use of measurement.
4.1	Apply measurement concepts and skills as needed in problem solving situations.
4.2	Make judgments about degree of precision needed and reasonableness of results in measurement situations.
4.3	Use models to develop the concept and formula for surface area for rectangular solids and cylinders.
4.4	Use models to develop the concept of volume for prisms/cylinders as the product of area of the base and height.
4.5	Use models to explore the relationship of the volume of a cone to a cylinder, and a pyramid to a prism, with the same base and height.
4.6	Estimate answers; solve problems related to volume.
5.0	The student will solve problems and reason mathematically.
5.1	Use an organized approach and a variety of strategies to solve increasingly complex non-routine problems.
5.2	Use calculators and computers in problem solving situations as appropriate.
5.3	Discuss alternate strategies, evaluate outcomes, and make conjectures and generalizations based on problem situations.
5.4	Use concrete or pictorial models involving spatial visualization to solve problems.
5.5	Solve problems involving interpretation of graphs, including inferences and conjectures.
6.0	The learner will demonstrate an understanding and use of probability and statistics.
6.1	Create, compare, and evaluate both orally and in writing different graphic representations of the same data.
6.2	Construct a box plot (box and whiskers) by ordering data, identifying the median, quartiles, and extremes.
6.3	Evaluate appropriate uses of different measures of central tendency.
6.4	Draw inferences and construct convincing arguments based on analysis of data.
6.5	Investigate and recognize misuses of statistical or numerical information.
6.6	Show all possible outcomes by making lists, tree diagrams, and frequency distribution tables.
6.7	Explain the relationship between experimental results and mathematical expectations.
6.8	Find the probability of simple events using experiments, random number generation, computer simulation, and theoretical methods.
6.9	Explore permutations and combinations in applications.

Goal/ Objective	Description of Goal/Objective
7.0	The learner will compute with real numbers.
7.1	Select appropriate operations, strategies, and methods of solving a variety of application problems using positive rational numbers, and justify the selection.
7.2	Estimate and solve problems using ratio, proportion, and percent; select and use appropriate methods; explain the process used.
7.3	Apply concepts of ratio, proportion, and percent to real life situations such as consumer applications, science and social studies.
7.4	Use real world examples and models to represent multiplication and division of integers; record and explain procedures used.
7.5	Use operations with integers in relevant problem situations.
7.6	Use operations with integers.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	7.1	Applying	C	
2	7.1	Applying	D	
3	3.4	Applying	A	
4	3.4	Applying	C	
5	7.1	Generating	C	
6	7.1	Generating	C	
7	1.2	Generating	B	
8	1.2	Applying	C	
1	1.1	Knowledge	C	
2	1.1	Analyzing	A	
3	1.3	Integrating	D	
4	1.3	Applying	C	
5	1.6	Knowledge	C	
6	1.7	Knowledge	C	
7	1.7	Knowledge	D	
8	2.1	Knowledge	B	
9	2.1	Applying	C	
10	2.2	Applying	D	
11	2.2	Applying	B	
12	2.3	Generating	D	
13	2.4	Knowledge	A	
14	2.6	Knowledge	A	
15	2.7	Applying	D	
16	3.1	Applying	B	
17	3.1	Analyzing	A	
18	3.2	Integrating	D	
19	3.3	Analyzing	A	
20	3.3	Generating	A	
21	3.4	Applying	B	
22	3.4	Analyzing	C	
23	3.5	Knowledge	D	
24	3.6	Knowledge	D	
25	3.6	Integrating	C	
26	3.7	Knowledge	A	
27	3.7	Integrating	D	
28	4.1	Generating	B	
29	4.1	Generating	B	
30	4.3	Applying	B	
31	4.4	Applying	C	
32	4.4	Applying	B	
33	4.4	Applying	B	
34	4.5	Generating	A	
35	5.1	Applying	C	
36	5.1	Applying	D	
37	5.1	Applying	C	
38	5.2	Applying	B	
39	5.2	Applying	B	
40	5.3	Applying	A	
41	5.4	Knowledge	A	
42	5.5	Evaluating	A	
43	5.5	Organizing	D	
44	5.6	Applying	A	
45	5.6	Applying	C	
46	5.6	Applying	C	
47	6.1	Knowledge	C	
48	6.2	Generating	B	
49	6.2	Generating	B	
50	6.3	Applying	C	
51	6.3	Analyzing	B	
52	6.3	Evaluating	D	
53	6.4	Generating	A	
54	6.5	Evaluating	D	
55	6.6	Applying	B	
56	6.6	Evaluating	A	
57	7.1	Applying	A	
58	7.1	Applying	D	
59	7.1	Applying	C	
60	7.1	Applying	C	
61	7.1	Applying	B	
62	7.1	Applying	A	
63	7.1	Applying	B	
64	7.1	Applying	C	
65	7.1	Applying	B	
66	7.1	Applying	B	
67	7.2	Applying	A	
68	7.2	Applying	A	
69	7.2	Knowledge	B	
70	1.4	Applying	C	
71	1.4	Applying	D	
72	4.1	Generating	B	

Goal/ Objective	Description of Goal/Objective
1.0	The learner will demonstrate an understanding and use of real numbers.
1.1	Explore the real number system by describing and using various forms of numbers in realistic situations.
1.2	Use appropriate estimation techniques in meaningful situations; justify the technique.
1.3	Use and explain definitions and laws of exponents to write expressions in equivalent forms.
1.4	Use scientific notation to express whole numbers and numbers less than one, using a calculator when appropriate.
1.5	Investigate irrational numbers and their representations on a calculator as they arise from problem situations.
1.6	Describe the properties of terminating, repeating, and non-repeating decimals and be able to convert fractions to decimals and decimals to fractions.
1.7	Explore the absolute value of a number using the number line.
2.0	The learner will demonstrate an understanding and use properties and relationships of geometry.
2.1	Use the Pythagorean Theorem to find the missing side of a right triangle; use calculator when appropriate.
2.2	Solve problems related to similar figures using indirect measures to determine missing sides.
2.3	Draw 3-dimensional figures from different perspectives (top, side, front).
2.4	Graph on a coordinate plane similar figures, reflections, and translations.
2.5	Explore the triangle congruency relationships: ASA, SSS, SAS.
2.6	Explore the relationships of the angles formed by cutting parallel lines by a transversal.
2.7	Solve problems that relate geometric concepts to real world situations.
3.0	The learner will demonstrate an understanding of pre-algebra.
3.1	Describe, extend, analyze and create a wide variety of geometric and numerical patterns, such as Pascal's triangle or the Fibonacci sequence.
3.2	Identify and define the commutative, associative and distributive properties; give examples and explain their meanings.
3.3	Analyze representations of data with tables, graphs, verbal rules and equations to explore properties and relationships.
3.4	Using patterns and algebraic methods, solve problems, including those with integers.
3.5	Generate ordered pairs with and without a calculator and graph the linear equation.
3.6	Investigate non-linear equations and inequalities informally.
3.7	Given a formula make appropriate substitutions and solve for one unknown.

Goal/ Objective	Description of Goal/Objective
4.0	The learner will demonstrate an understanding and use of measurement.
4.1	Estimate the answer; then solve complex problems that include application of measurement; determine precision and check for reasonableness of results.
4.2	Determine the number of significant digits, the greatest possible error and relative error in measurement situations.
4.3	Select an appropriate unit and tool to find a measurement based upon the degree of accuracy required and the nature of the problem situation.
4.4	Find the surface area and volume of pyramids, prisms, cylinders, and cones with and without models.
4.5	Explore the effect on plane and solid figures when a dimension of the figure is changed.
5.0	The student will solve problems and reason mathematically.
5.1	Use an organized approach and a variety of strategies to solve increasingly complex non-routine problems.
5.2	Use calculators and computers in problem solving situations as appropriate.
5.3	Make and evaluate conjectures and arguments, using deductive and inductive reasoning.
5.4	Investigate open-ended problems, formulate questions, and extend problem solving situations.
5.5	Represent situations verbally, numerically, graphically, geometrically, or symbolically.
5.6	Use proportional reasoning to solve problems.
6.0	The learner will demonstrate an understanding and use of probability and statistics.
6.1	Collect data involving two variables and display on a scatter plot; interpret results.
6.2	Compute the mean, interpret it, explain its sensitivity to extremes, and explain its use in comparison with the median.
6.3	Apply knowledge of statistics in problem solving situations, selecting an appropriate format for presenting data.
6.4	Use mathematical probabilities and experimental results for making predictions and decisions.
6.5	Evaluate arguments based on data and investigate reasons why an inference made from a set of data can be invalid (biased vs. unbiased).
6.6	Find the probability of simple and compound events using experiments, computer simulations, random number generation, and theoretical methods.

Goal/ Objective	Description of Goal/Objective
7.0	**The learner will compute with real numbers.**
7.1	Select appropriate operations, strategies, and methods of solving a variety of application problems using real numbers, justifying the selection.
7.2	In meaningful contexts, develop the laws of exponents; solve problems involving exponentiation.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	2.2	Organizing	A	
2	2.1	Applying	B	
3	2.2	Analyzing	B	
4	2.2	Organizing	C	
5	2.2	Evaluating	D	
6	2.1	Generating	A	
7	2.3	Knowledge	A	
8	2.3	Evaluating	C	
9	2.2	Generating	B	
10	2.1	Knowledge	D	
11	2.1	Knowledge	B	
12	2.3	Knowledge	A	
13	3.2	Evaluating	B	
14	2.1	Knowledge	A	
15	2.1	Knowledge	D	
16	2.1	Knowledge	C	
17	2.3	Applying	A	
18	2.2	Organizing	C	
19	2.1	Organizing	D	
20	2.1	Knowledge	D	
21	2.1	Applying	A	
22	3.1	Evaluating	D	
23	2.2	Applying	B	
24	3.3	Generating	C	
25	2.2	Analyzing	D	
26	2.3	Applying	B	
27	2.1	Knowledge	D	
28	2.1	Generating	A	
29	3.1	Generating	C	
30	3.2	Generating	D	
31	2.2	Integrating	C	
32	2.1	Knowledge	A	
33	2.2	Knowledge	A	
34	2.2	Analyzing	D	
35	2.3	Applying	B	
36	3.3	Integrating	D	
37	3.2	Evaluating	B	
38	2.2	Analyzing	D	
39	2.1	Knowledge	B	
40	2.2	Applying	C	
41	2.3	Generating	C	
42	2.3	Generating	B	
43	2.2	Organizing	A	
44	2.1	Knowledge	B	
45	2.3	Applying	D	
46	2.1	Knowledge	C	
47	2.3	Applying	A	
48	3.3	Organizing	C	
49	2.1	Applying	B	
50	2.2	Integrating	D	
51	2.1	Knowledge	A	
52	2.2	Evaluating	B	
53	2.1	Knowledge	D	
54	2.1	Knowledge	C	
55	2.3	Applying	B	
56	2.1	Applying	C	

Goal/ Objective	Description of Goal/Objective
1.0	The learner will use strategies and processes that enhance control of communication skills development.
1.1	The learner will apply preparation strategies to comprehend or convey experiences and information.
1.2	The learner will apply engagement strategies to comprehend or convey experiences and information.
1.3	The learner will apply response strategies to comprehend or convey experiences and information.
2.0	The learner will use language for the acquisition, interpretation, and application of information.
2.1	The learner will identify, collect, or select information and ideas.
2.2	The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
2.3	The learner will apply, extend, and expand on information and concepts.
3.0	The learner will use language for critical analysis and evaluation.
3.1	The learner will assess the validity and accuracy of information and ideas.
3.2	The learner will determine the value of information and ideas.
3.3	The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.
4.0	The learner will use language for aesthetic and personal response.
4.1	The learner will respond to personal situations and events in selections and to personal situations and events.
4.2	The learner will respond to the personal, social, cultural, and historical significance of selections or personal experiences.
4.3	The learner will respond critically and creatively to selections or personal experiences.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)	Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	2.1	Analyzing	B		34	2.1	Organizing	D	
2	2.1	Knowledge	A		35	2.3	Analyzing	C	
3	2.1	Knowledge	A		36	2.1	Analyzing	B	
4	2.2	Analyzing	D		37	2.2	Analyzing	C	
5	2.2	Evaluating	B		38	3.2	Integrating	D	
6	3.3	Analyzing	A		39	2.2	Generating	A	
7	2.2	Generating	B		40	2.1	Applying	C	
8	2.1	Knowledge	D		41	2.1	Knowledge	B	
9	2.1	Knowledge	C		42	2.1	Analyzing	D	
10	2.3	Applying	A		43	2.3	Applying	D	
11	3.3	Generating	A		44	2.1	Organizing	A	
12	2.2	Analyzing	B		45	2.3	Applying	B	
13	2.1	Knowledge	D		46	3.2	Evaluating	A	
14	2.2	Knowledge	C		47	2.2	Organizing	C	
15	2.1	Organizing	B		48	2.1	Knowledge	B	
16	2.3	Knowledge	B		49	2.2	Knowledge	B	
17	2.2	Organizing	A		50	2.1	Organizing	A	
18	3.3	Evaluating	C		51	2.1	Integrating	D	
19	2.3	Generating	D		52	3.3	Analyzing	B	
20	3.2	Applying	A		53	3.1	Evaluating	C	
21	2.2	Knowledge	C		54	3.2	Integrating	B	
22	2.2	Generating	B		55	2.1	Knowledge	A	
23	2.1	Knowledge	B		56	2.2	Knowledge	D	
24	3.3	Generating	A		57	2.2	Analyzing	A	
25	2.2	Organizing	C		58	3.2	Generating	B	
26	2.1	Applying	D		59	3.2	Applying	A	
27	2.1	Analyzing	A		60	3.2	Evaluating	C	
28	2.1	Organizing	C		61	2.2	Knowledge	D	
29	3.3	Generating	D		62	2.3	Applying	D	
30	3.2	Evaluating	A		63	2.1	Knowledge	B	
31	3.3	Evaluating	D		64	3.1	Evaluating	C	
32	2.2	Analyzing	C		65	3.3	Evaluating	C	
33	3.2	Analyzing	C						

Goal/ Objective	Description of Goal/Objective
1.0	The learner will use strategies and processes that enhance control of communication skills development.
1.1	The learner will apply preparation strategies to comprehend or convey experiences and information.
1.2	The learner will apply engagement strategies to comprehend or convey experiences and information.
1.3	The learner will apply response strategies to comprehend or convey experiences and information.
2.0	The learner will use language for the acquisition, interpretation, and application of information.
2.1	The learner will identify, collect, or select information and ideas.
2.2	The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
2.3	The learner will apply, extend, and expand on information and concepts.
3.0	The learner will use language for critical analysis and evaluation.
3.1	The learner will assess the validity and accuracy of information and ideas.
3.2	The learner will determine the value of information and ideas.
3.3	The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.
4.0	The learner will use language for aesthetic and personal response.
4.1	The learner will respond to personal situations and events in selections and to personal situations and events.
4.2	The learner will respond to the personal, social, cultural, and historical significance of selections or personal experiences.
4.3	The learner will respond critically and creatively to selections or personal experiences.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	2.2	Knowledge	B	
2	3.3	Analyzing	D	
3	2.1	Organizing	C	
4	2.1	Analyzing	C	
5	3.1	Applying	A	
6	2.1	Knowledge	A	
7	2.2	Analyzing	C	
8	2.2	Knowledge	D	
9	2.2	Knowledge	A	
10	2.2	Analyzing	D	
11	2.1	Knowledge	D	
12	3.3	Evaluating	B	
13	2.1	Applying	D	
14	2.1	Knowledge	C	
15	2.1	Applying	B	
16	2.1	Organizing	A	
17	3.3	Evaluating	B	
18	1.0	Knowledge	C	
19	2.2	Integrating	A	
20	2.1	Evaluating	C	
21	2.1	Evaluating	C	
22	3.3	Evaluating	D	
23	3.3	Generating	A	
24	3.2	Analyzing	B	
25	3.2	Integrating	C	
26	2.1	Analyzing	D	
27	2.1	Knowledge	A	
28	2.2	Generating	B	
29	3.3	Analyzing	D	
30	3.3	Evaluating	A	
31	2.1	Organizing	B	
32	3.3	Evaluating	D	
33	3.3	Generating	B	
34	1.0	Knowledge	C	
35	3.2	Applying	D	
36	2.2	Analyzing	D	
37	2.1	Knowledge	B	
38	2.1	Organizing	B	
39	2.2	Evaluating	C	
40	3.3	Organizing	A	
41	3.2	Evaluating	D	
42	3.3	Analyzing	C	
43	3.2	Applying	A	
44	2.2	Analyzing	C	
45	2.2	Analyzing	C	
46	2.1	Knowledge	B	
47	2.2	Organizing	B	
48	3.3	Evaluating	C	
49	2.2	Evaluating	A	
50	2.2	Organizing	B	
51	1.0	Knowledge	B	
52	2.2	Analyzing	D	
53	2.1	Generating	A	
54	2.2	Generating	B	
55	2.1	Knowledge	D	
56	2.2	Analyzing	D	
57	2.2	Evaluating	B	
58	3.3	Evaluating	A	
59	3.2	Evaluating	C	
60	1.0	Knowledge	D	
61	2.2	Knowledge	C	
62	3.3	Evaluating	D	
63	2.2	Analyzing	C	
64	3.1	Applying	B	
65	3.2	Evaluating	A	

Goal/ Objective	Description of Goal/Objective
1.0	The learner will use strategies and processes that enhance control of communication skills development.
1.1	The learner will apply preparation strategies to comprehend or convey experiences and information.
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2.1	The learner will identify, collect, or select information and ideas.
2.2	The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
2.3	The learner will apply, extend, and expand on information and concepts.
3.0	The learner will use language for critical analysis and evaluation.
3.1	The learner will assess the validity and accuracy of information and ideas.
3.2	The learner will determine the value of information and ideas.
3.3	The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.
4.0	The learner will use language for aesthetic and personal response.
4.1	The learner will respond to personal situations and events in selections and to personal situations and events.
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4.3	The learner will respond critically and creatively to selections or personal experiences.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)	Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	2.1	Analyzing	A		34	2.3	Generating	D	
2	2.2	Generating	C		35	1.0	Evaluating	B	
3	2.2	Generating	B		36	2.2	Organizing	C	
4	2.2	Generating	D		37	2.2	Generating	B	
5	3.3	Evaluating	A		38	2.2	Knowledge	A	
6	3.3	Evaluating	C		39	2.2	Generating	C	
7	2.2	Organizing	D		40	2.1	Analyzing	B	
8	1.0	Analyzing	A		41	3.1	Evaluating	D	
9	2.1	Knowledge	B		42	2.2	Generating	B	
10	2.2	Organizing	A		43	2.2	Generating	A	
11	2.3	Analyzing	D		44	2.1	Knowledge	D	
12	2.2	Evaluating	D		45	2.1	Knowledge	D	
13	3.3	Evaluating	B		46	2.2	Generating	B	
14	2.3	Evaluating	C		47	3.3	Generating	C	
15	2.1	Knowledge	A		48	2.2	Organizing	A	
16	2.2	Knowledge	C		49	2.2	Generating	C	
17	2.2	Generating	D		50	2.2	Knowledge	D	
18	2.3	Integrating	C		51	2.1	Analyzing	B	
19	2.2	Integrating	A		52	2.1	Generating	C	
20	2.2	Knowledge	D		53	3.1	Evaluating	A	
21	2.1	Generating	C		54	3.3	Evaluating	C	
22	2.2	Knowledge	A		55	1.0	Evaluating	A	
23	2.3	Generating	B		56	2.1	Organizing	B	
24	2.2	Organizing	C		57	2.1	Organizing	D	
25	3.3	Evaluating	B		58	2.1	Evaluating	A	
26	1.0	Evaluating	A		59	2.1	Analyzing	C	
27	3.3	Evaluating	D		60	3.3	Analyzing	B	
28	2.3	Applying	C		61	1.0	Organizing	D	
29	2.2	Applying	D		62	2.2	Analyzing	B	
30	2.1	Knowledge	D		63	2.1	Generating	B	
31	2.3	Evaluating	A		64	2.2	Organizing	D	
32	2.1	Organizing	C		65	2.1	Knowledge	C	
33	2.3	Generating	B						

Goal/ Objective	Description of Goal/Objective
1.0	The learner will use strategies and processes that enhance control of communication skills development.
1.1	The learner will apply preparation strategies to comprehend or convey experiences and information.
1.2	The learner will apply engagement strategies to comprehend or convey experiences and information.
1.3	The learner will apply response strategies to comprehend or convey experiences and information.
2.0	The learner will use language for the acquisition, interpretation, and application of information.
2.1	The learner will identify, collect, or select information and ideas.
2.2	The learner will analyze, synthesize, and organize information and discover related ideas, concepts, or generalizations.
2.3	The learner will apply, extend, and expand on information and concepts.
3.0	The learner will use language for critical analysis and evaluation.
3.1	The learner will assess the validity and accuracy of information and ideas.
3.2	The learner will determine the value of information and ideas.
3.3	The learner will develop criteria and evaluate the quality, relevance, and importance of the information and ideas.
4.0	The learner will use language for aesthetic and personal response.
4.1	The learner will respond to personal situations and events in selections and to personal situations and events.
4.2	The learner will respond to the personal, social, cultural, and historical significance of selections or personal experiences.
4.3	The learner will respond critically and creatively to selections or personal experiences.

Question Number	Obj	Thinking Skill	Correct Answer	P-value (1998)
1	3.2	Analyzing	A	
2	2.1	Analyzing	D	
3	2.2	Organizing	C	
4	2.1	Knowledge	B	
5	2.1	Organizing	D	
6	2.3	Generating	A	
7	1.0	Analyzing	C	
8	3.3	Organizing	C	
9	2.2	Knowledge	B	
10	2.2	Analyzing	A	
11	2.2	Generating	B	
12	2.1	Analyzing	D	
13	2.2	Organizing	C	
14	2.2	Organizing	B	
15	3.3	Analyzing	B	
16	2.1	Knowledge	A	
17	2.1	Knowledge	B	
18	2.2	Generating	A	
19	2.3	Applying	A	
20	2.3	Evaluating	C	
21	3.2	Organizing	D	
22	3.2	Evaluating	C	
23	3.3	Knowledge	A	
24	3.2	Evaluating	B	
25	2.1	Knowledge	A	
26	3.2	Applying	A	
27	3.3	Analyzing	B	
28	3.3	Evaluating	D	
29	3.2	Generating	B	
30	3.2	Analyzing	B	
31	2.1	Generating	B	
32	2.1	Knowledge	D	
33	2.1	Knowledge	C	
34	3.3	Evaluating	C	
35	1.0	Evaluating	B	
36	2.1	Knowledge	D	
37	2.2	Analyzing	A	
38	3.2	Generating	D	
39	3.3	Analyzing	B	
40	2.2	Analyzing	D	
41	1.0	Evaluating	C	
42	2.2	Knowledge	B	
43	2.3	Generating	A	
44	2.3	Generating	C	
45	2.1	Knowledge	C	
46	2.2	Organizing	D	
47	2.2	Analyzing	B	
48	2.2	Analyzing	C	
49	2.2	Generating	A	
50	2.2	Analyzing	D	
51	2.2	Generating	A	
52	1.0	Evaluating	D	
53	2.2	Organizing	C	
54	2.2	Analyzing	D	
55	2.2	Organizing	B	
56	2.1	Organizing	D	
57	2.2	Knowledge	A	
58	2.2	Analyzing	C	
59	1.0	Analyzing	C	
60	2.1	Knowledge	A	
61	2.2	Evaluating	B	
62	2.2	Knowledge	C	
63	2.1	Knowledge	D	
64	2.2	Applying	C	
65	3.2	Evaluating	A	
66	3.3	Analyzing	B	

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